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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

JOLLEY, KIRSTEN

ART UNIT PAPER NUMBER

1762

DATE MAILED: 03/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/748,457	Applicant(s) NGUYEN, ANDREW	
	Examiner Kirsten C. Jolley	Art Unit 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
 4a) Of the above claim(s) 1-15 and 32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 16,17,20,21 and 23-31 is/are rejected.
- 7) ☒ Claim(s) 18,19 and 22 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/1/04, 12/3/04, 11/7/05</u> | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-15, drawn to an apparatus for coating a surface with a polymer solution comprising a solvent remover, classified in class 118, subclass 52.
 - II. Claims 16-31, drawn to a method for coating a surface with a polymer solution, classified in class 427, subclass 240.
 - III. Claim 32, drawn to an apparatus for coating a surface with a polymer solution comprising an ultrasonic device, classified in class 118, subclass 58.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus can be used to practice another process, for example the apparatus can be used to apply a coating other than a polymer solution such as an etchant or cleaning solution.
3. Inventions II and III are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus can be used to practice another process, for example the apparatus can be used to apply

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a coating other than a polymer solution such as an etchant or cleaning solution. Alternatively, the process can be practiced by an apparatus that does not have an ultrasonic device and which vaporizes solvent by bubbling.

4. Inventions I and III are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because Invention I does not require an ultrasonic device. The subcombination has separate utility such as in a spin coating apparatus that does not have a solvent remover.

5. Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

6. Because these inventions are independent or distinct for the reasons given above and the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

7. During a telephone conversation with Mimi Diemmy Dao on March 1, 2006 a provisional election was made with traverse to prosecute the invention of Group II, claims 16-31.

Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-15 and 32 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claim 26 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 26 recites the limitation "the dispenser" in line 2. There is insufficient antecedent basis for this limitation in the claim. It is not clear what is meant by "the dispenser" -- the dispenser for the polymer solution or the dispenser for the carrier-solvent vapor mixture?

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 16, 20, 23-24, 26, and 28-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Batchelder (US 5,472,502).

Batchelder discloses a method for coating a surface of a substrate with a polymeric photoresist solution comprising: securing a substrate to be coated in a coating chamber having a rotatable chuck; generating a carrier-solvent vapor mixture and saturating the coating chamber with the carrier-solvent vapor mixture; dispensing the coating solution over a surface of the substrate while the coating chamber is saturated with the carrier-solvent vapor mixture; and

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rotating the substrate to spread the coating solution over the surface of the substrate. Further, it is the Examiner's position that, while not explicitly taught by Batchelder, the process of Batchelder removes excess solvent that does not get transformed into the solvent vapor by showerhead 312, to prevent the excess solvent from dropping on the substrate. Batchelder teaches that showerhead 312 has perforations 404 through which solvent vapor is dispersed, the perforations having a diameter of 0.002 inches and spaced one-half inch apart (col. 4, line 65 to col. 5, line 2). The Examiner notes that the size of perforations 404 in showerhead 312 are so small that only vapor could fit through, not drops of liquid solvent. Therefore use of showerhead 312 would prevent excess solvent that does not get transformed into solvent vapor from dropping onto the substrate. Further, the excess liquid solvent would necessarily be removed at some point after processing is completed and during cleaning of the equipment. It is particularly noted that when using the showerhead 312C of Figure 10, the excess liquid solvent remaining in filter 1006 would be removed after processing is completed and when the equipment is cleaned and/or the filter replaced.

Batchelder discloses generating carrier-solvent vapor mixture in processes which meet the limitations of claims 23 and 24, particularly the vapor distributor/showerhead 312C of Figure 10. As to claim 31, it is noted that in the embodiment of Figure 10/showerhead 312C, excess solvent is atomized.

As to claim 26, it is noted that the polymer solution source is coupled to the dispenser for the polymer solution, and to the vapor mixture dispenser (see Figure 3).

Claim Rejections - 35 USC § 103

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12. Claims 17, 21, 25, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Batchelder.

With respect to claim 17, Batchelder does not disclose use of a detector for detecting solvent level within the coating chamber. However, it is the Examiner's position that it would have been obvious for one having ordinary skill in the art to have added a solvent level detector to the process of Batchelder in order to ensure that the solvent level is maintained at the saturation point as is desired in Batchelder's process.

With respect to claim 21, Batchelder does not teach showerhead openings in the claimed range. It is the Examiner's position that it would have been obvious to one having ordinary skill in the art to have selected the showerhead opening sizes through routine experimentation depending upon the particular solvent mixture used, and the placement and amount of solvent vapor desired, in the absence of a showing of criticality.

As to claims 25 and 27, it would have been obvious to one having ordinary skill in the art to have directed the excess liquid solvent from Batchelder's process into a container because if the liquid solvent is not kept in a container, it would evaporate and pose harm to the operators' health.

Allowable Subject Matter

13. Claims 18-19 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not teach or fairly suggest the claimed spin coating method comprises a step of removing excess solvent that does not get transformed into

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the solvent vapor to prevent the excess solvent from dropping on the substrate, whereby the excess solvent is collected in a collector above the coating area, the collector having a raised edge, and removing the excess solvent through a removal line placed in communication with the collector.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Talieh et al. (US 6,248,398) and Bachman et al. (US 5,611,886) are cited to demonstrate the relevant prior art.

15.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kirsten C. Jolley whose telephone number is 571-272-1421. The examiner can normally be reached on Monday to Wednesday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Kirsten C Jolley
Primary Examiner
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kcj